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CURRENT SERIAL RECORDS

# **WATER SUPPLY OUTLOOK FOR MONTANA**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE--SOIL CONSERVATION SERVICE,  
and  
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

AS OF  
MAR. 1, 1970



## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82601

## PUBLISHED BY OTHER AGENCIES.

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



# ***WATER SUPPLY OUTLOOK FOR MONTANA***

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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WATER SUPPLY OUTLOOK FOR MONTANA  
March 1, 1970

MONTANA'S SNOWFALL IS AN IMPORTANT PART OF ITS WATER SUPPLY AND RECREATION

\* \* \* \* \*

\*  
\* In general the mountain snow pack is below \*  
\* average west of the divide and above average \*  
\* east of the divide. Water supply forecasts \*  
\* are for below average runoff on all streams \*  
\* in the Columbia River drainage and the \*  
\* Jefferson, Marias and Sun Rivers in the \*  
\* Missouri River drainage. Forecasts for \*  
\* streams in central Montana and the lower \*  
\* Gallatin drainage are well above average. \*  
\*  
\* \* \* \* \*

COLUMBIA RIVER DRAINAGE

Snow - During February the snow pack increased precentage wise in the northern part of the Columbia River drainage in Montana, and decreased in southern areas. The present snow pack is below average in all drainages. In general the snow pack at higher elevations is nearer average than at lower elevations.

Streamflow - Most streams are forecast to produce 80 to 85 percent average runoff during the April through September period. Smaller streams with low elevation headwaters are forecast in the 60 to 75 percent range.



## MISSOURI RIVER DRAINAGE

Snow - The mountain snow pack varies from 15 percent below average in the Jefferson and Marias-Sun River drainages to 30-35 percent above average in the Gallatin and Judith-Musselshell drainages. Along the main stem, snow on the west side of the Missouri is well below average while it is well above average on the east side. Near average conditions exist on the Madison drainage.

Streamflow - April-September forecasts on streams originating west of the Missouri are 70-80 percent average. In the Jefferson drainage, streamflow is expected to be in the 80-90 percent range. Near average flows are forecast for the Madison, Missouri, Milk and St. Mary Rivers. Well above average runoff can be expected in the Gallatin, Judith, Musselshell and Smith River drainages.

## YELLOWSTONE RIVER DRAINAGE

Snow - In general, snow is above average in the Montana portion of the Yellowstone and decreases to below average near the headwaters in Yellowstone Park. Snow in the north end of the Big Horn mountains is well above average. The headwaters of the Big Horn River has near average snow pack.

Streamflow - Near average streamflow is forecast for the Yellowstone and tributaries above the Big Horn River. The Big Horn is a little below average. The Little Big Horn and Tongue Rivers are expected to provide above average runoff.





# SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF:	
		Last Year	Average

## COLUMBIA RIVER DRAINAGE

Kootenai	17	65	76
Flathead	18	80	94
Upper Clark Fork	24	62	83
Lower Clark Fork	14	76	88
Bitterroot	12	76	88

## MISSOURI RIVER DRAINAGE

Jefferson	17	53	85
Madison	16	66	96
Gallatin	14	114	131
Missouri Main Stem	10	82	105
Judith-Musselshell	9	131	135
Marias-Teton-Sun	7	80	86
St. Mary	3	93	93
Milk (Headwaters)	4	97	97
Milk (Cypress Hills)	4	92	140

## YELLOWSTONE RIVER DRAINAGE

Yellowstone	20	102	116
Little Big Horn	7	160	132



# SOIL MOISTURE

DRAINAGE BASIN and/or STATION		Profile (Inches)		Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity		This Year	Last Year	Average †
COLUMBIA RIVER BASIN							
Kootenai							
Baree Trail	3800	48	7.5			6.3	6.4
Murphy Lake R. S.	3000	48	22.6	3/02	19.2	19.1	20.4
Raven R. S.	3050	48	23.0			21.4	21.4
Flathead							
Desert Mountain	5600	54	8.4	2/27	6.4	8.7	7.2
Marias Pass	5250	54	6.5	2/28	4.6	5.4	5.1
Clark Fork							
Black Pine	7100	48	10.0	2/24	7.4	8.1	7.3
Seeley Lake R. S.	4030	48	11.9	3/04	6.1	-	-
Skalkaho Summit	7260	48	10.8	2/26	9.6	9.7	9.7
Bitterroot							
Gibbons Pass	7100	48	7.1	3/02	3.5	5.8	5.4
Lolo Pass	5250	48	10.6	2/27	5.0	6.2	6.5
MISSOURI RIVER BASIN							
Beaverhead							
Lakeview	6700	48	15.3			6.7	7.8
Madison							
West Yellowstone	6700	48	6.5	2/28	2.0	2.8	-
Gallatin							
Bridger Bowl	7250	48	17.0	2/26	16.4	16.7	16.1
College Site	4856	54	14.5	3/02	14.3	13.0	10.7
Lick Creek	6860	48	18.8	2/27	17.1	17.0	16.4
Twenty-One Mile	7150	48	10.0	2/28	1.8	6.7	3.5
Missouri Main Stem							
Kings Hill	7420	48	11.8	2/27	6.5	6.7	6.9
Stemple Pass	6350	48	5.9	2/27	3.4	4.2	4.2
Milk							
Beaver Creek	3950	48	10.9	2/27	8.5	-	-
Rocky Boy	4700	36	10.1	2/27	7.1	-	-
Yellowstone							
Battle Ridge	6020	48	17.6	2/26	13.3	13.7	13.3
Northeast Entrance	7350	48	9.4	3/01	4.8	7.5	6.4





**RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH**

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average
COLUMBIA RIVER BASIN					
Flathead	Hungry Horse	3,428.0	2,038.0	2,508.0	2,269.0
	Flathead Lake	1,791.0	908.7	1,010.0	963.0
	Camas (4)	45.2	18.5	14.4	28.6
	Mission Valley (8)	100.3	24.7	76.8	32.7
Clark Fork	Georgetown Lake	31.0	25.8	27.3	23.6
	Noxon Rapids	334.6	313.6	296.9	293.4
	Nevada	12.6			
Bitterroot	Como	34.9	12.2	18.4	11.6
	Painted Rocks	31.7	19.3	26.0	20.9
MISSOURI RIVER BASIN					
Beaverhead	Clark Canyon	328.9	142.7	150.3	129.5
	Lima	84.0	44.5	44.5	22.9
Ruby	Ruby	38.8	32.4	31.5	27.0
Madison	Hebgen Lake	377.5	266.1	299.5	170.7
	Ennis Lake	41.0	35.6	34.5	37.7
Gallatin	Middle Creek	8.0	4.1	3.8	3.6
Missouri	Canyon Ferry	2,043.0	1,632.0	1,586.0	1,562.0
	Hauser & Helena	61.9	62.5	71.5	57.1
	Lake Helena	10.4	10.7	10.2	8.8
	Holter Lake	81.9	73.5	20.1	54.3
	Smith River	10.7	5.1	8.2	6.3
	Durand	7.0	3.6	6.3	4.4
	Martinsdale	23.1	4.8	10.5	6.4
	Deadman's Basin	72.2	28.9	46.9	46.1
	Fort Peck	19,410.0	16,050.0	15,970.0	10,900.0
	Gibson	105.0	17.2	62.4	49.4
	Willow Creek	32.3	18.5	21.5	20.8
	Pishkun	32.0	17.4	17.2	17.7
Marias	Lower Two Medicine	16.6		11.4	0.0
	Four Horns	19.2		12.8	12.1
	Swift	30.0	-	24.2	19.7
	Lake Frances	112.0	82.8	79.4	83.5
	Tiber	1,347.0	527.3	447.8	628.0
Milk	Fresno	127.2	65.7	82.1	59.4
	Nelson	66.8	46.3	44.0	41.0
	Lake Sherburne	66.1	17.6	26.9	20.6
Yellowstone	Mystic Lake	20.8	5.4	8.9	7.7
	Tongue River	68.0		34.0	22.8
	Cooney	27.5	14.9	18.7	14.3
Big Horn	Yellowtail	1,356.0	695.9	719.7	586.8



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average

## COLUMBIA RIVER BASIN

FISHER RIVER					
Libby (near)	230	77	Apr-Sept	358	298
	217	77	Apr-July	343	281
KOOTENAI RIVER					
Libby (at)	6500	81	Apr-Sept	9168	8025
	5600	81	Apr-July	8230	6956
YAAK RIVER					
Troy (near)	480	84	Apr-Sept		573
	460	84	Apr-July		549
KOOTENAI RIVER					
Leonia (at)	7320	80	Apr-Sept	10672	9198
	6380	79	Apr-July	9626	8072
	5100	79	Apr-June	7877	6463
RACETRACK CREEK					
Anaconda (near)	29.4	86	Apr-Sept		34.1
	23.5	85	Apr-July		27.6
FLINT CREEK					
Boulder Creek (below)(3)	61.5	88	Apr-Sept	80.1	69.6
	48.0	87	Apr-July	63.9	55.1
MIDDLE FORK ROCK CREEK					
Philipsburg (near)	61.0	83	Apr-Sept		73.4
	54.5	82	Apr-July		66.2
NEVADA CREEK					
Finn (near)	11.9	58	Apr-Sept		20.7
	11.0	57	Apr-July		19.3
BLACKFOOT RIVER					
Bonner (near)	850	84	Apr-Sept	1079	1008
	760	83	Apr-July	982	912
	650	83	Apr-June	818	788
CLARK FORK RIVER					
Milltown (above)(4)	640	85	Apr-Sept	889	755
	560	85	Apr-July	786	659
	475	85	Apr-June	614	562
CLARK FORK RIVER					
Missoula (above)	1490	85	Apr-Sept	1968	1763
	1320	84	Apr-July	1768	1572
	1125	83	Apr-June	1432	1350

(3) Sum Flint Creek at Maxville and Boulder Creek at Maxville.

(4) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.





# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
WEST FORK BITTERROOT RIVER					
Conner (near)(5)	150	88	Apr-Sept	184	170
	140	89	Apr-July	174	158
EAST FORK BITTERROOT RIVER					
Conner (near)	138	81	Apr-Sept	174	170
	125	81	Apr-July	161	154
BITTERROOT RIVER					
Darby (near)	480	86	Apr-Sept	566	558
	440	85	Apr-July	535	517
	385	85	Apr-June	486	453
SKALKAHO CREEK					
Hamilton (near)	45.6	82	Apr-Sept	59.0	55.8
	40.0	82	Apr-July	52.5	48.9
BURNT FORK CREEK					
Stevensville (near)(10)	28.3	83	Apr-Sept	42.0	34.2
	24.5	83	Apr-July	37.1	29.6
BITTERROOT RIVER					
Missoula (at)(6)	1225	84	Apr-Sept	1503	1466
	1130	83	Apr-July	1432	1360
	980	83	Apr-June	1287	1175
CLARK FORK RIVER					
Missoula (below)	2715	84	Apr-Sept	3471	3229
	2450	84	Apr-July	3200	2932
	2105	83	Apr-June	2719	2525
ST. REGIS RIVER					
St. Regis (near)	272	82	Apr-Sept		332
	260	82	Apr-July		316
CLARK FORK RIVER					
St. Regis (at)	3635	83	Apr-Sept	4687	4398
	3300	83	Apr-July	4332	3993
	2860	83	Apr-June	3724	3451
NORTH FORK FLATHEAD RIVER					
Columbia Falls (near)	1750	87	Apr-Sept	2004	2023
	1600	87	Apr-July	1860	1846
	1360	87	Apr-June	1618	1562
MIDDLE FORK FLATHEAD RIVER					
West Glacier (near)	1670	86	Apr-Sept	1644	1931
	1550	86	Apr-July	1542	1791
	1310	86	Apr-June	1317	1521
SOUTH FORK FLATHEAD RIVER					
Columbia Falls (near)(7)	2060	87	Apr-Sept	2130	2358
	1950	87	Apr-July	2015	2235
	1710	87	Apr-June	1780	1967

(5) Adjusted for storage in Painted Rocks Reservoir.

(6) Difference in observed flow Clark Fork above and below Missoula.

(7) Adjusted for storage in Hungry Horse Reservoir.

(10) Adjusted for diversion into Sunset Highline Canal.



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
FLATHEAD RIVER					
Columbia Falls (at)(7)	5630	87	Apr-Sept	5744	6467
	5200	87	Apr-July	5393	6003
	4490	87	Apr-June	4680	5155
SWAN RIVER					
Big Fork (near)	592	86	Apr-Sept	632	688
	530	87	Apr-July	565	607
	433	87	Apr-June	464	496
FLATHEAD RIVER					
Polson (near)(8)	6570	85	Apr-Sept	7296	7701
	6100	85	Apr-July	6856	7157
	5200	85	Apr-June	5924	6123
CLARK FORK RIVER					
Plains (near)(8)	10485	84	Apr-Sept	12388	12482
	9630	84	Apr-July	11504	11448
	8250	84	Apr-June	9877	9802
THOMPSON RIVER					
Thompson Falls (near)	232	82	Apr-Sept	320	283
	207	82	Apr-July	292	253
PROSPECT CREEK					
Thompson Falls (at)	127	84	Apr-Sept	161	152
	120	84	Apr-July	153	143
CLARK FORK RIVER					
Whitehorse Rapids (at)(9)	11790	84	Apr-Sept		13987
	10750	84	Apr-July		12787
	9200	84	Apr-June		10953

(7) Adjusted for storage in Hungry Horse Reservoir.

(8) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.

(9) Adjusted for storage in Hungry Horse, Flathead Lake and Noxon Rapids Reservoirs.





# STREAMFLOW FORECASTS

STREAMFLOW FORECASTS	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
BASIN, STREAM and/or FORECAST POINT					

## MISSOURI RIVER BASIN

RED ROCK RIVER					
Monida (near)(11)	73.0	92	Apr-Sept		79.1
	68.4	92	Apr-July		74.2
BEAVERHEAD RIVER					
Armstead (near)(11)(12)	85.0	80	Apr-Sept	218	106
	72.0	80	Apr-July	209	90.0
RUBY RIVER					
Alder (near)	78.5	98	Apr-Sept		80.0
	66.0	98	Apr-July		67.0
BIG HOLE RIVER					
Melrose (near)	612	89	Apr-Sept		690
	570	89	Apr-July		642
BIRCH CREEK					
Glen (near)	12.8	98	Apr-Sept		13.1
	10.7	97	Apr-July		11.0
BOULDER RIVER					
Boulder (near)	65.0	82	Apr-Sept		78.9
	62.0	82	Apr-July		75.5
JEFFERSON RIVER					
Sappington (at)(12)	790	83	Apr-Sept		948
	712	83	Apr-July		857
WILLOW CREEK					
Harrison (near)	14.2	92	Apr-Sept		15.5
	13.0	92	Apr-July		14.2
MADISON RIVER					
West Yellowstone (near)	202	95	Apr-Sept		212
	153	96	Apr-July		160
MADISON RIVER					
Grayling (near)(13)	430	100	Apr-Sept	573	430
	335	99	Apr-July	464	337
MADISON RIVER					
McAllister (near)(14)	785	107	Apr-Sept	962	734
	625	106	Apr-July	778	587
GALLATIN RIVER					
Gateway (near)	555	120	Apr-Sept		461
	475	121	Apr-July		393

(11) Adjusted for storage in Lima Reservoir.

(12) Adjusted for storage in Clark Canyon Reservoir.

(13) Adjusted for storage in Hebgen Lake.

(14) Adjusted for storage in Hebgen and Ennis Lakes.



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
HYALITE CREEK					
Bozeman (near)(15)	49.0	131	Apr-Sept		37.4
	42.7	131	Apr-July		32.5
GALLATIN RIVER					
Logan (at)	650	137	Apr-Sept		473
	550	137	Apr-July		401
MISSOURI RIVER					
Toston (at)(16)	2140	102	Apr-Sept		2105
	1870	102	Apr-July		1836
SHEEP CREEK					
White Sulphur Springs (near)	25.7	137	Apr-Sept		18.4
	22.0	137	Apr-July		16.0
SMITH RIVER					
Eden (near)	285	159	Apr-Sept		179
	260	158	Apr-July		165
SUN RIVER					
Gibson Dam (at)(17)	495	80	Apr-Sept	509	604
	445	80	Apr-July	467	555
BELT CREEK					
Monarch (near)	150	138	Apr-Sept		109
	138	138	Apr-July		100
MISSOURI RIVER					
Fort Benton (at)(18)	3360	101	Apr-Sept		3321
	2860	101	Apr-July		2834
TWO MEDICINE CREEK					
Browning (near)(19)	209	82	Apr-Sept		256
	200	82	Apr-July		245
BADGER CREEK					
Browning (near)	102	77	Apr-Sept		133
	89	77	Apr-July		116
CUT BANK CREEK					
Cut Bank (at)	92	77	Apr-Sept		120
	85	77	Apr-July		111
MARIAS RIVER					
Shelby (near)(20)	450	75	Apr-Sept	476	604
	435	75	Apr-July	472	581

(15) Adjusted for storage in Middle Creek Reservoir.

(16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.

(17) Adjusted for storage in Gibson Reservoir and diversions.

(18) Adjusted for storage in Canyon Ferry Reservoir.

(19) Adjusted for storage in Two Medicine Reservoir and diversions into Two Medicine Canal.

(20) Adjusted for storage in Two Medicine, Four Horns, Lake Frances and Swift Reservoirs.





# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
MISSOURI RIVER					
Virgelle (at)(21)	3900	97	Apr-Sept	4036	
	3400	97	Apr-July	3511	
SOUTH FORK JUDITH RIVER					
Utica (near)	16.7	133	Apr-Sept	12.5	
	15.6	133	Apr-July	11.7	
MISSOURI RIVER					
Landusky (near)(21)	4300	96	Apr-Sept	4484	
	3730	96	Apr-July	3889	
NORTH FORK MUSSELSHELL RIVER					
Delpine (near)	7.7	140	Apr-Sept	5.5	
	6.6	140	Apr-July	4.7	
SOUTH FORK MUSSELSHELL RIVER					
Martinsdale (above)	61.0	132	Apr-Sept	46.2	
	58.0	132	Apr-July	44.0	
MISSOURI RIVER					
Fort Peck Dam (below)(22)	4100	95	Apr-Sept	4312	
	3630	95	Apr-July	3824	
MILK RIVER					
Eastern Crossing (at)	280	100	Mar-Sept	281	
MISSOURI RIVER					
Wolf Point (near)(22)	4350	93	Apr-Sept	4683	
	3880	93	Apr-July	4168	
MISSOURI RIVER					
Williston, N.D. (near)(29)	10770	98	Apr-Sept	10998	
	9550	97	Apr-July	9823	

## SASKATCHEWAN RIVER BASIN

ST. MARY RIVER					
Babb (near)(30)	455	93	Apr-Sept	492	
	395	93	Apr-July	427	

- (21) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.  
 (22) Adjusted for storage in Canyon Ferry, Tiber and Fort Peck Reservoirs.  
 (29) Adjusted for storage in Canyon Ferry, Tiber, Fort Peck, Buffalo Bill, Boysen and Yellowtail Reservoirs. Sum Yellowstone River near Sidney and Missouri River near Culbertson.  
 (30) Adjusted for storage in Lake Sherburne.





# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average

## YELLOWSTONE RIVER BASIN

YELLOWSTONE RIVER					
Corwin Springs (at)	1900	101	Apr-Sept	2091	1880
	1590	101	Apr-July	1796	1575
YELLOWSTONE RIVER					
Livingston (near)	2200	104	Apr-Sept		2122
	1840	104	Apr-July		1769
BOULDER RIVER					
Big Timber (at)	360	104	Apr-Sept		347
	340	104	Apr-July		327
STILLWATER RIVER					
Absarokee (near)(25)	570	102	Apr-Sept		558
	485	102	Apr-July		474
CLARKS FORK RIVER					
Chance (at)	580	100	Apr-Sept		582
	529	100	Apr-July		530
ROCK CREEK					
Red Lodge (near)	112	106	Apr-Sept	103	106
	87.0	106	Apr-July	76.6	82.1
YELLOWSTONE RIVER					
Billings (at)	4150	104	Apr-Sept	4160	3944
	3530	104	Apr-July	3664	3400
BIG HORN RIVER					
St. Xavier (near)(26)	1600	93	Apr-Sept	1620	1719
	1510	93	Apr-July	1549	1625
LITTLE BIG HORN RIVER					
Lodgegrass (near)(28)	150	122	Apr-Sept		123
	133	122	Apr-July		109
YELLOWSTONE RIVER					
Miles City (at)(27)	6020	103	Apr-Sept		5850
	5330	103	Apr-July		5177
YELLOWSTONE RIVER					
Sidney (near)(27)	6050	100	Apr-Sept		6069
	5450	100	Apr-July		5454

(25) Adjusted for storage in Mystic Lake.

(26) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake and Yellowtail Reservoirs.

(27) Adjusted for storage in Buffalo Bill, Boysen and Yellowtail Reservoirs.

(28) Sum Little Big Horn below Pass Creek and Lodgegrass Creek near Wyola.



# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

## COLUMBIA RIVER BASIN

### KOOTENAI RIVER

Bald Eagle Peak	5700	3/06	128	47.7	68.5	-
Banfield Mountain	5600	3/03	67	21.0	28.1	-
Banfield Mountain Pillow	5600	3/03	SP	17.4	23.1	-
Baree Creek	5500	3/01	105	38.0	47.6	43.5
Baree Midway	4600	3/01	94	31.0	35.9	-
Baree Trail	3800	3/01	37	12.0	18.5	-
Bear Mountain	5400	3/05	135	47.3	66.5	-
Bristow Creek	3900	3/03	45	13.3	16.9	-
Brush Creek	5000	2/25	36	10.0	15.2	11.7
Brush Creek Timber	5000	2/25	32	8.9	13.7	10.4
Cedar Grove	4100	3/06	44	13.4	14.4	-
Davis Creek	5400	3/04	64	19.7	29.5	-
Fernie	3500	2/27	27	7.7	13.5	8.6
Field	4200	2/27	17	3.3	6.1	5.9
Garver Creek	4250	3/04	41	10.8	15.8	-
Garver Creek Pillow	4250	3/04	SP	8.8	13.3	-
Glacier	4100	2/27	58	18.2	24.8	25.2
Graves Creek	4300	3/02	56	17.3	20.4	17.0
Gray Creek	5100	2/27	38	8.3	17.2	16.0
Halverson Creek	4850	3/05	110	36.4	51.6	-
Hawkins Lake	6450	3/04	68	21.1	35.4	-
Hawkins Lake Pillow	6450	3/04	SP	18.8	32.4	-
Keeler Creek	3300	3/05	49	16.3	22.4	-
Kicking Horse	5400	2/28	33	8.0	12.0	13.4
Kimberley	3800	2/27	22	4.7	11.0	8.0
Lost Soul	4800	3/03	52	15.2	18.5	-
Marble Canyon	5000	2/25	30	6.0	15.1	12.7
Morrissey Ridge	6100				31.9	25.6
New Fernie	4100	2/27	42	11.5	18.7	13.6
Poorman Creek	5100	3/06	86	28.9	41.7	-
Poorman Creek Pillow	5100	3/06	SP	20.3	34.4	-
Red Mountain	6000	2/26	42	13.1	20.5	17.4
Sinclair Pass	4500	2/25	17	3.7	6.6	5.6
Stahl Peak	6050	3/02	94	30.6	43.3	-
Sullivan Mine	5100	2/26	30	8.8	16.8	12.4
Upper Elk River	4400	2/25	19	4.4	9.5	7.4
Weasel Divide	5450	3/02	82	26.4	38.8	31.2

SP - Snow pillow observation - water content only.





# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average
<u>FLATHEAD RIVER</u>						
Bassoo Peak	5150	2/26	29	8.9	13.8	10.2
Beaver Lake	5900				23.2	20.0
Big Creek	6750	2/25	109	39.0	42.6	39.2
Camp Misery	6400	2/26	112	40.7	48.4	41.0
Desert Mountain	5600	2/27	36	13.3	16.9	14.0
Fatty Creek	5500	2/25	68	20.5	21.6	19.6
Griffin Creek Divide	5150	2/26	34	10.2	15.0	11.3
Gunsight Lake	6300				38.6	36.0
Hell Roaring Divide	5770	2/26	77	24.3	32.8	27.5
Holbrook	4530	3/02	37	8.8	11.4	9.9
Kishenehn	3890	3/03	31	6.5	11.8	9.3
Logan Creek	4300	2/25	24	6.7	10.0	8.2
Marias Pass	5250	2/26	54	15.6	16.0	16.1
Mineral Creek	4000	2/27	55	18.7	19.4	19.1
Noisy Creek	3600	2/26	21	6.4	-	-
North Fork Jocko	6330	2/26	99	36.4	42.9	40.4
Spotted Bear Mountain	7000				14.4	13.6
Trinkus Lake	6100				41.5	37.0
Twin Creeks	3580				14.2	11.3
Upper Holland Lake	6200				35.6	30.4

## CLARK FORK RIVER

Black Pine	7100	2/24	32	9.9	16.4	11.6
Black Pine Pillow	7100	2/24	SP	9.6	14.2	11.6
Combination	5600	2/24	13	3.6	-	-
Copper Creek	5700	2/27	43	11.9	19.6	13.9
Cotter Mine	6250	2/27	51	15.6	22.6	15.1
Coyote Hill	4200	2/26	34	10.8	11.4	10.2
El Dorado Mine	7800	2/27	52	16.5	22.9	16.8
Fred Burr Pass	8000	2/25	57	19.3	26.3	22.0
Gold Creek Lake	7200	2/27	36	11.1	17.0	12.6
Heart Lake Trail	4800	2/27	50	15.8	24.4	20.2
Hoodoo Basin	6000	2/27	109	39.3	51.5	-
Hoodoo Basin Pillow	6000	3/01	SP	41.5	-	-
Hoodoo Creek	5900	2/27	106	37.7	47.8	42.5
Intergaard	6450	3/03	25	5.4	8.9	7.0
Lookout	5250	3/02	104	31.9	41.3	32.3
Lubrecht Forest No. 3	5450	3/01	24	5.5	9.6	6.6
Lubrecht Forest No. 4	4650	3/01	15	3.5	4.8	3.5
Lubrecht Forest No. 6	4040	3/01	15	4.0	7.1	3.3
Red Lion	7100	2/26	42	11.6	16.8	13.7
Skalkaho Summit	7260	2/26	60	20.6	26.0	22.8
Slide Rock Mountain	7100	2/25	29	9.2	15.4	12.2
Southern Cross	6500	3/03	18	4.2	8.2	6.0
Storm Lake	7780	2/26	35	9.0	13.6	11.2
Stuart Mill	6500	3/03	20	4.5	7.4	5.8
Stuart Mountain	7400				-	26.6
TV Mountain	6800	3/04	56	17.7	18.4	15.0

SP - Snow pillow observation - water content only.

Average based on 1953-67 period.



# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

## BITTERROOT RIVER

Ambrose	6480	2/26	30	8.8	12.8	11.5
Coyote Meadows Trail	7000	3/03	54	15.6	19.2	-
East Fork R. S.	5400	3/02	21	5.0	8.4	6.3
Gibbons Pass	7100	2/24	54	18.9	26.9	19.5
Lolo Pass	5230	2/26	76	25.6	30.0	29.0
Lost Horse	5940	2/25	78	27.5	31.3	28.0
Moose Creek	6200	2/27	45	14.9	17.6	14.2
Nez Perce Camp	5680	2/24	41	12.6	14.0	12.7
Nez Perce Pass	6570	2/24	43	13.6	15.8	13.8
Saddle Mountain	7940	3/02	69	21.4	28.2	21.7
Saddle Mountain Pillow	7940	3/02	SP	22.4	29.5	-
Savage Pass	6600	2/25	61	19.8	27.4	24.9
Twelvemile Creek	5600	2/25	55	18.9	19.3	-
Twelvemile Creek Pillow	5600	2/25	SP	17.4	17.5	-
Twin Lakes	6510	2/25	95	33.8	41.3	37.2
Twin Lakes Pillow	6400	2/25	SP	33.6	37.9	-

SP - Snow pillow observation - water content only.



# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

## MISSOURI RIVER BASIN

### BEAVERHEAD RIVER

Bloody Dick	7600	2/26	27	8.8	13.2	9.2
Camp Creek	6800	2/25	24	6.5	21.4	7.8
Carter Creek	7400				5.3	3.8
Dad Creek Lake	8400	3/05	40	11.1	16.0	9.7
Elk Horn Springs	7800	3/03	35	8.1	12.5	8.4
Gold Stone	8100	2/26	39	12.4	16.4	12.2
Kilgore	6200	2/24	33	10.5	19.4	8.3
Lakeview Canyon	6930	2/27	22	5.8	23.3	9.7
Lakeview Ridge	7400	2/27	20	5.5	23.9	8.5
Lemhi Pass	7480	2/25	21	5.2	11.1	6.9
Lemhi Ridge	8100	2/25	21	5.8	10.7	-
Sawtelle Mountain	8715	2/26	74	26.0	47.1	-
Trail Creek	7090	2/25	19	4.8	10.6	6.3
White Pine Ridge	8850	3/05	16	3.4	5.4	4.0

### RUBY RIVER

Branham Lakes	8850	2/25	75	26.9	31.2	-
Clover Meadow	8600	3/05	49	14.8	17.7	12.5
Divide	7900	3/05	35	9.3	15.0	8.2
Middle Mill Creek	7850	2/25	46	15.4	18.6	-
Notch	8500	3/05	50	15.6	17.6	10.8
Smuggler Mine	6960	2/25	34	9.6	11.8	-

### BIG HOLE RIVER

Abundance Lake	8800	3/05	58	16.8	21.4	15.9
Calvert Creek	6450	2/27	34	9.6	-	-
Darkhorse Lake	8600	3/05	73	25.4	28.3	22.5
Foolhen	8280	3/05	54	14.8	19.8	14.5
Jahnke Lake Trail	7200	2/26	28	7.5	-	-
Mudd Lake	7650	2/27	49	16.2	-	-
Slag-A-Melt Lake	8750	3/05	77	25.8	29.2	-

### JEFFERSON RIVER

Berry Meadow	7300	Not Measured			10.0	6.7
Copper Mountain	7700	3/02	36	7.6	11.9	-
Nez Perce Creek	6500	3/02	21	4.1	7.2	-
Picnic Grounds	6500	3/03	20	3.6	5.5	4.0
Pipestone Pass	7200	2/24	10	2.0	5.9	4.3
Rocker Peak	8000	3/02	46	12.4	15.7	-
Rocker Peak Pillow	8000	3/02	SP	11.8	14.1	-
Uncle Sam Gulch	6500	3/02	28	6.3	8.7	-

SP - Snow pillow observation - water content only.





# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

## MADISON RIVER

Big Springs	6500	2/26	55	18.6	26.0	17.9
Black Canyon	7850	2/24	81	26.8	40.2	28.5
Black Moose	8125	2/24	92	33.8	48.0	34.0
Call Road	8050	3/05	37	10.9	10.0	8.4
Four Mile	6900	2/24	23	6.3	10.0	6.6
Hebgen Dam	6550	2/26	33	9.3	13.9	10.0
Island Park	6315	2/26	48	15.1	23.5	13.9
Jack Creek	7500	2/24	18	4.4	5.0	4.8
Lake Creek	6100	2/27	22	6.6	11.4	-
Latham Springs	7650	2/24	78	27.8	36.8	27.8
Lion Mountain	8760	2/25	51	13.5	27.8	-
Lion Mountain Pillow	8760	2/25	SP	9.7	-	-
Lower Twin	7900	2/24	59	18.4	21.6	15.6
Lucky Dog	6900	2/24	67	22.2	30.0	21.1
Madison Plateau	7750	2/26	53	18.0	28.8	-
Madison Plateau Pillow	7750	2/26	SP	19.6	30.3	-
Meridian Creek	7000	2/27	26	7.1	16.8	-
Norris Basin	7500	3/04	32	5.0	12.0	9.2
North Meadow	7500	2/24	20	5.1	10.0	6.2
Old Road	7250	2/24	70	25.6	35.8	24.3
Poachers Cabin	8000	2/24	76	27.4	39.6	29.0
Potomageton Park	7150	2/27	35	11.2	19.3	12.8
Sentinel Creek	8300	2/27	56	18.5	29.9	20.3
Soap Bogus Divide	7600	2/24	40	11.7	22.2	-
Tepee Creek	8000	2/27	40	13.1	26.6	-
Valley View	6500	2/26	36	10.1	28.1	13.3
West Yellowstone	6700	2/25	31	9.3	16.0	9.8
West Yellowstone Pillow	6700	2/27	SP	6.4	12.4	-
Whiskey Creek	6800	2/26	50	15.6	26.8	-

## GALLATIN RIVER

Arch Falls	7350	2/27	42	13.4	11.4	10.0
Bear Basin	8150	2/25	65	22.0	20.0	16.8
Bridger Bowl	7250	2/26	83	30.7	24.6	22.5
Bridger Bowl Pillow	7250	2/26	SP	29.2	23.7	21.8
Carrot Basin	9000	2/26	81	30.1	49.4	-
Carrot Basin Pillow	9000	2/26	SP	21.1	33.1	-
Devils Slide	8100	2/27	67	24.3	19.3	17.9
Hood Meadow	6600	2/27	32	10.0	8.4	7.8
Lick Creek	6860	2/27	35	10.2	8.1	8.7
Lick Creek Pillow	6860	2/27	SP	9.4	6.2	7.1
Little Park	7400	2/25	50	15.3	14.8	12.6
Maynard Creek	6210	2/26	61	20.8	16.5	-
Maynard Creek Pillow	6210	2/26	SP	13.6	10.6	-
New World	6700	2/24	39	12.4	10.0	8.6
Shower Falls	8100	2/27	76	28.3	23.8	20.8
Shower Falls Pillow	8100	2/27	SP	23.6	19.6	18.8
Twenty-One Mile	7150	2/24	40	12.4	24.9	15.4



# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

## MISSOURI RIVER (Main Stem)

Boulder Mountain	7950	2/24	51	16.8	17.9	13.4
Chessman Reservoir	6200	2/26	0	0.0	6.7	3.4
Deadman Creek	6450	2/27	50	13.6	10.4	-
Deadman Creek Pillow	6450	2/27	SP	11.4	9.4	-
Elk Peak	8000	2/25	49	15.3	13.3	13.4
Grasshopper	7000	2/25	18	4.9	7.4	4.3
Kings Hill	7500	3/02	58	18.1	11.3	10.7
Stemple Pass	6600	2/26	24	5.9	11.3	9.2
Ten Mile Lower	6600	2/25	15	3.6	10.0	6.0
Ten Mile Middle	6800	2/25	24	6.4	12.7	8.8
Ten Mile Upper	8000	2/25	30	9.2	15.9	11.5

## SUN-TETON-MARIAS RIVERS

Badger Pass	6900				38.9	31.8
Blue Lake	5900				28.9	-
Cabin Creek	5200	2/26	17	3.8	7.9	7.0
Five-Bull	5700				9.3	5.7
Freight Creek	6000				14.2	14.1
Goat Mountain	7000	2/28	33	7.6	12.1	10.2
Mount Lockhart	6400	2/24	55	18.2	19.3	-
Mount Lockhart Pillow	6400	2/24	SP	14.6	16.2	-
Waldron	5600	2/24	28	7.8	8.7	-
Waldron Pillow	5600	2/24	SP	7.8	10.3	-
Wrong Creek	5700	2/28	29	10.8	13.5	14.3
Wrong Ridge	6800	3/01	54	15.4	16.9	19.4

## JUDITH RIVER

Avalanche	7100	2/25	73	24.0	15.1	-
Crystal Lake	6100	2/25	51	15.8	8.2	11.1
Rock Creek	5600	2/25	34	9.4	6.3	-
Spur Park	8000	2/27	73	21.6	18.4	16.5
Spur Park Pillow	8000	2/27	SP	21.6	17.5	-

## MUSSELSHELL RIVER

Daisy Peak	7600	2/25	34	9.8	10.6	-
Eagle Creek	7000	2/24	52	15.8	11.4	-
Forest Lake	6400	2/24	43	12.5	10.9	-
Haymaker	8050	2/26	40	11.9	13.1	-
Johnson Park	6450	2/25	22	6.6	8.7	-

SP - Snow pillow observation - water content only.





# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

## MILK RIVER

Bear Paw Ski Area	5200	2/27	28	8.6	5.3	-
Cypress Park C	4000	2/27	20	6.6	5.3	4.0
Elkwater Lake A	4100	2/27	10	2.9	2.2	2.0
Rocky Boy	4700	2/27	21	6.0	4.0	4.2
Rocky Boy Pillow	4700	2/27	SP	4.4	4.0	-
Val Marie D	2700	2/27	7	1.5	2.9	1.3
Wildhorse B	3450	2/27	5	1.3	3.0	1.5

## ST. MARY RIVER

Hudson Bay Divide	5800	2/25	39	13.5	16.2	16.3
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## SASKATCHEWAN (BOW) RIVER

Bow River #1	5100	2/24	21	4.6	8.0	-
Chateau Lawn #8	5700	2/24	26	6.1	10.6	-
Mirror Lake #6	6600	2/24	23	5.8	10.9	-
Mount Eisenhower #10	5000	2/23	13	2.8	5.9	-
Upper Pipestone #2	5300	2/23	20	4.6	7.6	-

## UPPER YELLOWSTONE RIVER

Bald Ridge	7500	2/26	42	13.0	10.2	10.1
Camp Senia	7890	3/03	19	4.6	4.4	4.8
Canyon	7750	3/04	52	12.6	18.0	13.4
Cooke Station	8150	2/26	60	21.2	19.8	-
Crevice Mountain	8400	2/25	28	8.6	11.0	7.2
East Entrance	7000	2/28	32	8.0	10.0	9.4
Fisher Creek	9100	2/26	94	36.2	38.0	-
Fisher Creek Pillow	9100	2/26	SP	31.9	32.5	-
Grizzly Peak	8400	3/02	44	12.0	7.7	13.1
Independence	8000	2/28	47	13.8	17.7	14.1
Lake Camp	7850	2/27	25	5.4	12.6	8.2
Lodgepole	8200				9.9	8.8
Lupine Creek	7300	3/01	34	8.3	11.0	9.3
Mill Creek	7500	2/27	46	13.4	-	-
Monument Peak	9000	2/28	60	19.4	25.2	20.0
Northeast Entrance	7400	2/28	35	9.0	9.6	7.6
Northeast Entrance Pillow	7350	3/01	SP	9.5	9.3	-
Porcupine R. S.	6500	2/26	28	8.4	6.1	6.3
Sacajawea	6550	2/26	55	19.0	14.2	10.8
South Fork Shields	8100	2/26	76	25.8	19.4	19.0
Sylvan Pass	7100	2/28	41	10.5	13.5	11.6
Thumb Divide	7900	2/26	47	13.8	26.6	19.0
Timberline Creek	8850	3/03	43	11.0	11.9	11.5
West Rosebud	7500	2/26	24	7.3	12.3	8.8
White Mill	8700	2/26	72	26.3	26.9	-









# Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service  
Region I, Missoula, Montana  
Montana Forests and Ranger  
Districts

U. S. Geological Survey  
Helena, Montana  
Portland, Oregon

U. S. Army Corps of Engineers  
Portland, Oregon  
Seattle, Washington  
Walla Walla, Washington  
Omaha, Nebraska

U. S. Indian Irrigation Service  
St. Ignatius, Montana

U. S. Weather Bureau  
Helena, Montana  
Portland, Oregon  
Kansas City, Missouri

U. S. Bureau of Sports Fisheries  
and Wildlife  
Red Rock Lakes Refuge  
Monida, Montana

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Montana State University  
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Water Rights Branch, Dept. of  
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